Nos. 24-1278, -1354

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

CPC PATENT TECHNOLOGIES PTY LTD.,

Appellant,

v.

APPLE INC.,

Appellee.

Appeals from the United States Patent and Trademark Office Patent Trial and Appeal Board, Nos. IPR2022-00601, IPR2022-00602

APPLE INC.'S RESPONSE BRIEF

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JULY 3, 2024

Claim 1 of U.S. Patent No. 9,269,208

1. A system for providing secure access to a controlled item, the system comprising:

a database of biometric signatures;

a transmitter sub-system comprising:

a biometric sensor for receiving a biometric signal;

means for matching the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute; and

means for emitting a secure access signal conveying information dependent upon said accessibility attribute; and

a receiver sub-system comprising:

means for receiving the transmitted secure access signal; and

means for providing conditional access to the controlled item dependent upon said information,

wherein the transmitter sub-system further comprises means for populating the data base of biometric signatures, the population means comprising:

means for receiving a series of entries of the biometric signal, said series being characterised according to at least one of the number of said entries and a duration of each said entry;

means for mapping said series into an instruction; and

means for populating the data base according to the instruction,

wherein the controlled item is one of: a locking mechanism of a physical access structure or an electronic lock on an electronic computing device.

Claim 1 of U.S. Patent No. 9,665,705

1. A system for providing secure access to a controlled item, the system comprising:

    a memory comprising a database of biometric signatures;

    a transmitter sub-system comprising:

        a biometric sensor configured to receive a biometric signal;

        a transmitter sub-system controller configured to match the biometric signal against members of the database of biometric signatures to thereby output an accessibility attribute; and

        a transmitter configured to emit a secure access signal conveying information dependent upon said accessibility attribute; and

    a receiver sub-system comprising:

        a receiver sub-system controller configured to:

        receive the transmitted secure access signal; and

        provide conditional access to the controlled item dependent upon said information;

    wherein the transmitter sub-system controller is further configured to:

        receive a series of entries of the biometric signal, said series being characterised according to at least one of the number of said entries and a duration of each said entry;

        map said series into an instruction; and

        populate the data base according to the instruction, wherein the controlled item is one of: a locking mechanism of a physical access structure or an electronic lock on an electronic computing device.

CERTIFICATE OF INTEREST

Counsel for Apple Inc. certify under Federal Circuit Rule 47.4 that the following information is accurate and complete to the best of their knowledge:

1.   **Represented Entities.** Provide the full names of all entities represented by undersigned counsel in this case.

Apple Inc.

2.   **Real Parties in Interest.** Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities.

None.

3.   **Parent Corporations and Stockholders.** Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities.

None.

4.   **Legal Representatives.** List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court.

ERISE IP, P.A.: Jennifer C. Bailey, Adam P. Seitz

5.   **Related Cases.** Other than the originating case(s) for this case, are there related or prior cases that meet the criteria under Fed. Cir. R. 47.5(a)?

Yes, see separately filed notice.

6.   **Organizational Victims and Bankruptcy Cases.** Provide any information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c) (bankruptcy case debtors and trustees).

Not applicable.

Dated: July 3, 2024   /s/ Seth W. Lloyd
                                                                          Seth W. Lloyd

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Page(s)

Cases

Statutes and Other Authorities

STATEMENT OF RELATED CASES

These consolidated appeals on U.S. Patent Nos. 9,269,208 ('208 patent) and 9,665,705 ('705 patent) are two of three that CPC Patent Technologies Pty. Ltd. (CPC) filed challenging the Patent and Trial Appeal Board's final written decisions on three patents. *See* Appeal No. 24-1365.

No appeal from these proceedings has previously been before this Court or any other court. CPC asserted claims of the '208 and '705 patents against Appellee Apple Inc. in *CPC Patent Technologies Pty Ltd. v. Apple Inc.*, No. 3:22-cv-02553 (N.D. Cal.). The following cases may be affected by this Court's decision:

CPC Patent Techs. Pty Ltd. v. HMD Global Oy, No. 6:21-cv-00166 (W.D. Tex.)

ASSA ABLOY AB v. CPC Patent Techs. Pty Ltd., IPR2022-01089 (P.T.A.B.)

ASSA ABLOY AB v. CPC Patent Techs. Pty Ltd., IPR2022-01045 (P.T.A.B.)

ASSA ABLOY AB v. CPC Patent Techs. Pty Ltd., IPR2022-01006 (P.T.A.B.)

ASSA ABLOY AB v. CPC Patent Techs. Pty Ltd., No. 3:22-cv-00694 (D. Conn.)

JURISDICTIONAL STATEMENT

Apple disputes the portions of CPC's jurisdictional statement referencing Board decisions in other *inter partes* reviews brought by unrelated petitioner ASSA ABLOY and not involving Apple. CPC.Br.1 (citing *ASSA ABLOY AB v. CPC Patent Techs. Pty Ltd.*, IPR2022-01045, -01089 (P.T.A.B. Dec. 20, 2023); *ASSA ABLOY*

AB v. CPC Patent Techs. Pty Ltd., IPR2022-01006 (P.T.A.B. Nov. 30, 2023));

Appx4399; Appx4305.   Those decisions are not before the Court in these

proceedings. Apple otherwise agrees with CPC's jurisdictional statement.

INTRODUCTION

CPC's appeals are nothing more than fact-bound requests for this Court to substitute its judgment for the Board's. CPC is express that its only challenge on appeal is to the Board's factual findings on a single limitation. Yet in making findings on that limitation, the Board relied on express teachings from not one but two references, plus the detailed reports of Apple's expert. CPC quibbles with that evidence and the Board's conclusions from it but gives the Court no reason to disturb the Board's well-supported findings.

The challenged patent claims involve security systems that use biometrics, like fingerprints. The disputed limitation is the number-and-duration limitation. That limitation requires that the system include "means for receiving a series of entries of the biometric signal, said series being characterised according to at least one of the number of said entries and a duration of each said entry." To the extent the patents explain that limitation, they describe a fingerprint sensor that receives multiple finger presses in a predetermined pattern, much like tapping out Morse code on the sensor. Both prior-art references here describe fingerprint sensors that receive multiple finger touches characterized by either number, duration, or both. One reference explicitly states that its system receives a "series of fingerprint representations." Appx1297 (¶192). The other is similarly clear that fingerprint images may be combined with multiple finger presses. Appx1324 (col.7:1-11).

CPC does not and cannot overcome this evidence or the deference this Court owes the Board's weighing of it. Its lead argument is that the prior art somehow discloses only non-biometric signal series. But given the prior art's express teachings of receiving a "series of fingerprint representations"—*i.e.*, a biometric signal series—and other similarly compelling evidence, the Board rightly rejected that argument. Unable to overcome these facts, CPC resorts to relying on the vacated ASSA ABLOY Board decisions, which addressed other prior art on a different record and have no relevance here. CPC's other appeal arguments suffer from similar flaws, overlooking the prior art's teachings and asking this Court to draw different conclusions from the Board on the facts.

The Board's decisions should be affirmed.

STATEMENT OF THE ISSUE

Whether substantial evidence supports the Board's findings regarding the prior art's teachings on the sole disputed limitation: means for receiving a series of entries of a biometric signal characterized by number and duration.

STATEMENT OF THE CASE

A.   The Prior Art Taught Accessing Secured Items By Using A Series Of Entries Of A Biometric Signal

Long before the challenged patents issued, it was well-known in the art to use fingerprint readers and similar biometric sensors for security purposes. Those

teachings are exemplified by the references underlying Apple's obviousness challenge: Mathiassen, Anderson, and McKeeth.

Mathiassen. Mathiassen teaches using "biometric input" to control access to items like cars, safes, medicine cabinets, or internet banks. Appx1273 (Abstract). Mathiassen criticizes as a "shortcoming[]" the way existing authentication methods relied on "something you know," like a "password," or "something you carry," like a token. Appx1285 (¶4); Appx1273-1301. That made existing methods vulnerable to being "passed away" or "illegally acquired" by a "third person." Appx1285 (¶4). To solve those problems, Mathiassen focuses on an "alternative identification method" based on "something you are, meaning some sort of secure identification by biometrics, such as fingerprints." Appx1285 (¶5).

A key feature of Mathiassen's teachings is a portable or embedded device with a fingerprint sensor. Appx1295 (¶147); Appx1286 (¶16). To access a secured item, a user places her finger on the fingerprint sensor, which "is connected to a fingerprint sensor signal capturing and pre-processing block." Appx1287 (¶49). When the "finger is detected on the sensor surface," the system "capture[s] raw images" of the fingerprint "from the sensor" and "process[es]" those images. Appx1287 (¶49). The raw images are reduced "to compact fingerprint representations, called minutiae." Appx1287 (¶50). These minutiae contain biometric information, including "distinct points where fingerprint lines (ridges) start[] or stop[], or locations of bifurcation of

3

the ridges." Appx1287 (¶50). As Apple's expert Dr. Sears confirmed, the system compares those minutiae "with master fingerprint representations stored in non-volatile memory." Appx1097-1101; Appx1035-1272; Appx3869-3873; Appx3811-4030; *see* Appx1287-1288 (¶¶49-50); Appx1296-1297 (¶¶175-82). If a captured fingerprint representation matches a stored master fingerprint representation, the system grants access to the secured item. Appx1287-1288 (¶¶49-50).

Mathiassen goes beyond using a single fingerprint; it also teaches using multiple fingerprint entries that form "a series of inputs, such as directional finger movement and even a series of touches and no touches." Appx1185 (¶212); Appx3964 (¶224) (Sears). Mathiassen explains that its system may receive and "store a series of consecutive fingerprint representations generated by the fingerprint sensor signal capturing and pre-processing block." Appx1297 (¶192); Appx1196; Appx3978 (Sears confirming same); *see* Appx1212-1213; Appx3921-3922. Using "hardware" or "software," the system "analyzes the obtained series of fingerprint representations" to determine whether the user has entered one of multiple "predefined sets of finger movement sequences including directional and touch/no-touch finger movement sequences." Appx1297 (¶192). If a match is found, the system uses a "command table" to translate the series "into control signals" "for controlling the device, e.g. the stand-alone appliance, in response to the finger movements on the sensor." Appx1297 (¶192).

Mathiassen gives an example of controlling a device with biometric signals during new-user enrollment. Mathiassen describes that "the system administrator" may "open" a new-user-enrollment process "by authenticating himself with his fingerprint." Appx1294 (¶131). Once that occurs, another individual may be "enrolled" as a new user by placing her finger on the sensor for her fingerprint representation to be received and stored in non-volatile memory. Appx1293-1294 (¶¶130-31); Appx1287-1288 (¶¶49-50); Appx1296 (¶¶162-64).

Anderson. Like Mathiassen, Anderson discloses an access control system, including with a fingerprint sensor. Appx1312 (Abstract); Appx1324 (col.7:1-11); Appx1312-1326. Anderson describes a system with a "touch interface" for "sensing variations in pressure applied by a user" on a touch pad. Appx1321 (col.1:61-col.2:40). The system relies on receiving not just a single finger touch, but multiple finger touches, *i.e.*, "a series of pressure pulses having varying duration." Appx1323 (col.6:45-47). The system compares the user-entered series of finger presses with a stored template to determine whether to grant access to a controlled device. Appx1323 (col.6:48-54). The touch interface may sense "temporal applications of pressure" as well as variations in applied pressure. Appx1324 (col.7:28-37).

Anderson expressly describes using biometric inputs as part of this process. It explains that the touch interface "may include an optical scanner or thermal sensor for collecting an image of the user's fingerprint as the pressure access code is entered

and verified against a stored fingerprint template." Appx1324 (col.7:5-8). "Verification of both the collected fingerprint image and the access code" is "required before the user is allowed access to the system or information." Appx1324 (col.7:8-11).

McKeeth. Apple's petitions also relied on McKeeth, which discloses a system and method for authenticating a user to access a computer system. Appx1302; Appx1302-1311 (Abstract). Like Mathiassen and Anderson, McKeeth recognizes that biometric signals can be combined with learned information (i.e., a learned pattern or sequence) for additional security. For instance, to access a computer, a user can "enter a password through the keyboard and, within a predetermined duration of time, place his/her finger on the mouse to be scanned while moving the mouse in a specified pattern." Appx1308 (col.3:19-23) (parenthetical omitted).

B. The Challenged Patents Claim Well-Known Uses Of Biometric Signals

Like the prior art, the '208 and '705 patents focus on using biometrics for security. Appx138 (col.1:29-30); Appx140-141 (col.5:63-65, col.7:9-30); Appx126-146. For instance, the patents describe using a fingerprint sensor to receive a biometric signal in "the form of a thumb press" on the sensor. Appx140 (col.5:56-59). The sensor senses the biometric signal, and the signal is compared to

a database of stored biometric signatures. Appx140 (col.5:61-65). If there is a match, the user gets access to a controlled item. Appx140 (col.5:61-67).[1]

The patents briefly describe using a series of entries of a biometric signal. The lone example focuses on a system "administrator" providing "control information" by inputting "a succession of finger presses to the biometric sensor." Appx142 (col.10:45-col.11:26). Those presses are compared to a predetermined "stored set of legal control signals." Appx142 (col.10:45-67). If the multiple presses are of the "appropriate quantity" and "duration," they may be used to control the device. Appx142 (col.10:45-67). "One example of a legal control signal can be expressed as follows: 'Enrol [sic] an ordinary user'→dit, dit, dit, dah[,] where 'dit' is a finger press of one second's duration and 'dah' is a finger press of two second's [sic] duration." Appx142 (col.10:57-63) (parenthetical omitted).

CPC treats claim 1 of each patent as "[i]llustrative" for its appeals and draws no distinction between either claim. CPC.Br.21 (quoting Appx10; Appx75). Both recite "[a] system for providing secure access to a controlled item." Appx145 (col.15:42-col.16:3); Appx166 (col.15:62-col.16:23). Both recite "a biometric sensor," either "for receiving a biometric signal" ('208 patent), or "configured to

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[1] The '705 patent issued from a continuation of the application that became the '208 patent. Appx147. This brief thus cites to the '208 patent for the common specification.

receive a biometric signal" ('705 patent). Appx145 (col.15:42-col.16:3); Appx166 (col.15:62-col.16:23). Both recite "a database of biometric signatures." Appx145 (col.15:42-col.16:3); Appx166 (col.15:62-col.16:23). And both recite a subsystem with a "means for receiving" (or "configured to receive") "a series of entries of the biometric signal, said series being characterized according to at least one of the number of said entries and a duration of each said entry"; that subsystem also includes means (or is configured) "for mapping said series into an instruction" and "means for populating the data base according to the instruction."   Appx145 (col.15:42-col.16:3); Appx166 (col.15:62-col.16:23). CPC's appeals focus on one shared limitation: means for receiving, or configured to receive, "a series of entries of the biometric signal" characterized by a "number" and "duration" of entries—*i.e.*, the number-and-duration limitation. CPC.Br.4.

> ## C.   The Board Finds That The Prior-Art Combination Discloses Or Suggests The Disputed Number-And-Duration Limitation And Holds All Challenged Claims Unpatentable

After CPC sued Apple for patent infringement, Apple petitioned the Board for *inter partes* reviews of claims 1, 3-7, 9-11, and 13 of the '208 patent and claims 1, 4, 6, 10-12, and 14-17 of the '705 patent. The Board instituted review and found that Apple had proved all challenged claims unpatentable based on the combination of Mathiassen, McKeeth, and Anderson. Appx64; Appx124.

In finding that Apple had met its burden of proof, the Board found that the "references, as combined by Petitioner, disclose or suggest" the number-and-duration limitation. Appx58; Appx119. The Board cited teachings from both Mathiassen and Anderson on that limitation, relying on McKeeth for other limitations that CPC has not appealed here.

The Board found that Mathiassen alone discloses means for receiving a biometric input series. Appx56-57; Appx116-117. The Board relied on Mathiassen's description of a "biometric sensor" that "'receives fingerprint representations,'" including "'a series of entries of [a] biometric signal by a movement analyzing program identifying the fingerprint motions.'" Appx41, Appx56-57 (citation omitted); Appx115 (similar). The Board recognized that the series could include, for example, "touch"/"no touch" finger presses on the sensor. Appx57; Appx116. It found that Mathiassen teaches using that series of received biometric inputs "to instruct a command on Mathiassen's portable device." Appx57-60 (italics omitted; quoting Apple's petition); *see* Appx116-17 (similar). And it found that Mathiassen "disclose[s] or suggest[s]" that one such command could be an "administrative code" for storing fingerprint representations when "enrolling a new user." Appx60-61; (quoting Apple's petition at Appx232-233; Appx173-266 and citing Appx1289-1290; Appx1294(¶¶71, 131); Appx1193-1194); *see* Appx120-

9

122 (quoting Apple's reply at Appx3458 and citing Appx1289-1290; Appx1294; Appx1296-1297; Appx3970; Appx3974-3975; Appx3978-3982).

The Board found that Anderson similarly discloses means for receiving a series of entries of a biometric signal that may be characterized by number and duration. Appx57; Appx103. The Board found that Anderson teaches a sensor for "receiving a series of fingerprint pressure pulses of varying duration" and "suggests the benefits and options of using a number and duration of pulses as inputs." Appx57; Appx117 (citing Apple's petition). The Board found that Anderson in fact teaches that the variable-pressure finger presses may be "biometric signals," because Anderson teaches that its touch interface "may include an optical scanner or thermal sensor for collecting an image of the user's fingerprint." Appx44; Appx57; Appx103; Appx116.

Relying on Apple's expert, the Board found that an ordinarily skilled artisan "would have been motivated" to combine these teachings. Appx57-58 (quoting Apple's petition at Appx212); *see* Appx116-117 (citing Apple's petition at Appx3245). Using "simple programming techniques," a skilled artisan would and could have used Mathiassen's fingerprint sensor to "count the number and duration of 'touch' or 'no touch'" fingerprint entries. Appx57-58 (quoting Apple's petition at Appx213); Appx116-117 (quoting Apple's petition at Appx3246 and citing Appx1297; Appx3964-3966). By using Mathiassen's "biometric sensor as the input

10

device," the combined system would "detect the biometric part of the input signal, while also sensing the number and duration of inputs." Appx58; Appx117. The Board found that the system would "translat[e] the series of finger movements to a command," such as to "'initiate[] enrollment of the next user.'" Appx59-61 (quoting Appx214); Appx119-122 (skilled artisan "would have found it obvious to include an enrollment command" corresponding to "said series" of entries of a biometric signal).

SUMMARY OF ARGUMENT

A.   These substantial-evidence appeals concern just one disputed claim limitation: a system with means for receiving (or configured to receive) a series of entries of a biometric signal. The record supports the Board's determination that the proposed combination would have included that limitation. Mathiassen teaches a series of entries of a biometric signal in the form of finger movements or touches on a fingerprint sensor—a series that is characterized by the number of presses. Anderson further teaches characterizing that series not just by the number of entries, but also by the duration of each entry. Independently, the record supports the Board's finding that Anderson alone teaches a series of entries of a biometric signal, because Anderson's series of finger presses can be used with fingerprint images. Multiple independent grounds thus support the Board's findings on this limitation.

CPC is wrong that the proposed combination would be non-biometric. CPC tries to draw a sharp line between the non-biometric and biometric components of a signal series, arguing that the prior-art systems somehow stop receiving biometric fingerprint signals when they begin receiving multiple finger presses with a number and duration. But as the Board put it, a fingerprint sensor's ability to recognize a fingerprint is not turned off when it is used multiple times. And far from any sharp line between biometric and non-biometric signal series, the Board found that the prior art links the two. It found that Mathiassen determines the number of touch/no touch finger presses (which CPC argues are non-biometric) by analyzing the series of received fingerprint representations (which are biometric). And the Board found that Mathiassen would have continued to operate that way when combined with Anderson, determining the number and duration of finger presses by analyzing the received biometric fingerprint representations. Unable to overcome these findings and evidence, CPC relies on the extra-record ASSA ABLOY Board decisions concerning different references and different evidence, which just illuminates the errors in CPC's appeals.

B. CPC also argues that the prior art does not teach the claimed biometric series as part of a user-enrollment process—a purported requirement that CPC never ties to the language of the sole limitation it disputes on appeal. But the Board found, and the record shows, that the prior-art combination would have included any such

limitation. Mathiassen teaches using a series of entries of a biometric signal to input a command to control the device; it teaches that one command for controlling a device can be to enroll a user; and it teaches an enrollment process that itself involves entering a biometric input. As Apple argued and the Board credited, an ordinarily skilled artisan would have been motivated to combine those teachings so that Mathiassen's series of entries is used to send the device an enrollment command as part of an enrollment process. CPC's arguments otherwise ignore the Board's reasoned analysis, demand express disclosure when none is required, and misconstrue the references and the challenged patents.

The Board's decisions should be affirmed.

STANDARD OF REVIEW

This Court "review[s] the Board's legal determinations de novo and its factual findings for substantial evidence." *Corephotonics, Ltd. v. Apple Inc.*, 84 F.4th 990, 1001 (Fed. Cir. 2023) (citation omitted). "Obviousness is a legal question based on underlying findings of fact," including the scope and content of the prior art and any differences between the claimed subject matter and the prior art. *Id.* at 1003 (citation omitted); *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966); 35 U.S.C. § 103.

CPC's appeal challenges only underlying factual issues governed by this substantial-evidence standard: whether "every limitation of each claim on appeal is found in one or another of the available references." *In re Constr. Equip. Co.*, 665

F.3d 1254, 1255-56 (Fed. Cir. 2011). "[W]here two different, inconsistent conclusions may reasonably be drawn from the evidence in record, an agency's decision to favor one conclusion over the other is the epitome of a decision that must be sustained upon review for substantial evidence." *In re Jolley*, 308 F.3d 1317, 1329 (Fed. Cir. 2002).

ARGUMENT

AMPLE EVIDENCE SUPPORTS THE BOARD'S FINDINGS THAT THE PROPOSED COMBINATION WOULD HAVE INCLUDED THE NUMBER-AND-DURATION LIMITATION

CPC's appeals raise a narrow factual challenge. CPC does not challenge the Board's claim constructions, its findings on motivation to combine and reasonable expectation of success, or—with a lone exception—its findings about what the prior art teaches. CPC's sole challenge is to the Board's finding that the proposed combination of Mathiassen, McKeeth, and Anderson includes the number-and-duration limitation. CPC attacks that finding in two flawed ways, arguing: (1) the prior art supposedly discloses only a non-biometric signal series; and (2) the prior art allegedly fails to disclose such a signal series for use in an "enrollment" process. Because both theories contradict the Board's findings and overlook the wealth of evidence supporting them, the Court should affirm.

A.   **Substantial Evidence Supports The Board's Finding That The Prior Art Discloses Biometric Signal Series**

1.   *The prior art's express disclosures and the expert testimony support the Board's finding*

Ample evidence supports the Board's finding that the proposed combination "discloses or suggests" a biometric signal series satisfying the number-and-duration limitation (Appx58; Appx119)—that is, a system with a means for receiving (or configured to receive) "a series of entries of the biometric signal, said series being characterized according to at least one of the number of said entries and a duration of each said entry." Appx145 (col.15:42-col.16:3); Appx166 (col.15:62-col.16:23).

As the Board found, Mathiassen alone teaches biometric input: a system with a biometric sensor for receiving a "series of entries of the biometric signal." To start, Mathiassen describes a system with a fingerprint sensor for receiving a user's fingerprint, a type of biometric signal. *See* Appx41 (Board describing Mathiassen's "biometric sensor"). It teaches that when a person's "finger is detected on the" surface of a fingerprint sensor, the system "capture[s] raw images" of the fingerprint "from the sensor" and "process[es]" those images. Appx1287 (¶49); Appx1126-1127; Appx3901-3902 (Sears describing same). Those captured raw images are reduced "to compact fingerprint representations, called minutiae." Appx1287 (¶50); Appx1168-1169; Appx3946-3947 (Sears describing same). These minutiae contain biometric information, because they consist of "distinct points where fingerprint

lines (ridges) start[] or stop[], or locations of bifurcation of the ridges." Appx1287 (¶50). This is at least equivalent to the disclosure in the challenged patents of a biometric signal in the form of a "thumb press on the biometric sensor," which is used to "receive[]" a "biometric signal." Appx140-141 (col.5:50-65, col.7:66-col.8:2); Appx1231; Appx3946-3949 (Sears); *see* Appx56-57 (Board recognizing same). Indeed, as the Board noted, CPC "does not contest" that Mathiassen "detects a finger on the sensor and processes raw images of fingerprints." Appx48.

Mathiassen also expressly describes that its biometric-input system and fingerprint sensor are configured for receiving a *series* of entries of a biometric signal. Mathiassen explains that the system may receive and store "a series of consecutive fingerprint representations generated by the fingerprint sensor signal capturing and pre-processing block." Appx1297 (¶192) (emphasis added). This "series" can include "touch/no-touch finger movement sequences" that a user performs "across the fingerprint sensor." Appx1297 (¶192). If the user provides a correct series of fingerprint entries matching one of the "predefined sets of finger movement sequences," the system uses a "command table" to translate the series of captured fingerprint sensor signals into a "control signal for controlling the device." Appx1297 (¶192); Appx56-57 (Board describing this teaching).

As Apple's expert Dr. Sears explained and the Board acknowledged, this description teaches means for receiving a "series of entries of the biometric signal,"

including one characterized at least by "number." Appx1168-1187; Appx1230-1233; Appx2341-2354; *see* Appx56-57; Appx115. Dr. Sears explained that Mathiassen's finger movements are "a series" because "they comprise a number of things or events of the same class coming one after the other in spatial or temporal succession." Appx1169-1170; Appx3947-3948. Mathiassen expressly discloses "analyz[ing] the obtained *series of fingerprint representations* to obtain a measure of the omni-directional finger movements across the sensor." Appx1297 (¶192) (emphasis added). According to Dr. Sears, this means that Mathiassen is receiving a biometric signal each time a user touches the sensor, because Mathiassen "determines the finger movements *from* analyzing the series of fingerprint representations." Appx2348-2349 (emphasis added) (explaining how "finger movements and series of fingerprint representations are not 'distinct'"). Thus, as the Board found, Mathiassen "will detect the biometric part of the input signal" series. Appx58; Appx117.

The Board also found that Anderson teaches that a signal series—including a biometric one like Mathiassen's—may be "characterized according to at least one of the number of said entries and a duration of each said entry." Appx57-58; Appx116-119 (concluding that Anderson "suggests the benefits and options of using a number and duration of pulses as inputs"). The record backs that up. Anderson discloses a device and method for "inputting an access code" to access a secured item "via

17

temporal variations in the amount of pressure applied to a touch interface." Appx1312 (Abstract). That "access code" consists of "a series of pressure pulses having varying durations." Appx1323 (col.6:45-47). For example, it can take the form of "a series of long and short pressure applications." Appx1324 (col.7:45-47). The pressure series that a user enters "is sensed by the touch interface" and then "compared" to "a code template created by the user at an earlier time." Appx1323 (col. 6:22-36); *see* Appx1323 (col.2:4-26). Only if there is a match between the entered series and the code template is access granted.

As Dr. Sears concluded, these teachings indicate that Anderson's access code "is comprised of a series of finger movements, specifically including pressing down and releasing (i.e., pulses) the finger on the fingerprint sensor, with each pulse having a certain known duration." Appx1175-1176; Appx3954-3955. And "some or more likely all of the finger presses" entered by a user "have to be characterized by the duration of the press" so that they can be compared to the stored code. Appx1180; Appx3959. That is at least equivalent to the challenged patents' description of a "succession of finger presses" that must be "of the appropriate duration" and "quantity" to constitute a control signal. Appx142 (col.10:45-67). Thus, even CPC concedes that Anderson teaches "a series of presses of varying duration." CPC.Br.21-22.

The Board also found, and CPC does not contest on appeal, that persons of ordinary skill in the art would have been motivated to combine Mathiassen's and Anderson's teachings with reasonably expected success. Appx57-58; Appx115-119; Appx1182-1187; Appx3961-3966 (Sears explaining motivation and reasonable expectation of success). The result would be a system with a fingerprint sensor that receives a user's fingerprint each time the user presses a finger on the sensor and also receives the number and duration of those fingerprint presses. Appx57-58; Appx115-119. As the Board put it, the system "will detect the biometric part of the input signal, *while also* sensing the number and duration of inputs." Appx58; Appx117 (emphasis added). The combination thus would include means for receiving "a series of entries of the biometric signal, said series being characterized according to at least one of the number of said entries and a duration of each said entry." Appx57-58; Appx115-119.

Even without that combination, the Board found and the record shows that Anderson alone discloses the number-and-duration limitation, including with a biometric signal series. Anderson "discloses input *biometric* signals that vary in number and duration." Appx57; Appx116 (emphasis added). The record supports that alternative finding. Anderson is express that a predetermined access code entered with a series of finger pulses may be "utilized in conjunction with other security measures." Appx1324 (col.7:1-11). It gives as an example using an "optical

19

scanner or thermal sensor for collecting an image of the user's fingerprint as the pressure access code is entered and verified against a stored fingerprint template." Appx1324 (col.7:1-11).

Dr. Sears' opinions also support the Board's findings about Anderson. He explained that persons of ordinary skill reading Anderson would understand that "as the user is entering that access code, the fingerprint is being captured." Appx2916; Appx2836-2940. And because the access code involves a series of finger presses, the system "can be capturing a fingerprint image each time the finger is in contact with the digitizer tablet." Appx3091 (ll.3-7) (Sears describing Anderson); Appx3046-3115. In other words, "Anderson is collecting two bits of data at the same time" for every finger press on the sensor: "the length of the press" and "the user's fingerprint." Appx541 (ll.14-17) (Board member at hearing); Appx519-571. The system then analyzes all that information to "[v]erif[y]" a user. Appx1324 (col.7:7-8). Given this disclosure of combining multiple biometric inputs with specified numbers and durations of those inputs, Anderson independently teaches the number-and-duration limitation.

2.   *CPC misreads the prior art and misconstrues the Board's analysis*

CPC cannot overcome the weight of this evidence. It contends that "Mathiassen's finger movements are non-biometric, as anyone can learn them"; that "the duration pattern of Anderson's finger presses are knowledge-based"; and that

20

the "upshot" is that the combination of the two "necessarily results in a non-biometric signal series." CPC.Br.24-25. Each of those assertions overlooks directly contrary Board findings and supporting evidence.

> ### a. *CPC overlooks Board findings and supporting evidence that Mathiassen discloses a biometric signal series*

To start, the Board rejected CPC's factual assertion that Mathiassen's finger movements are non-biometric. The Board found that Mathiassen "uses a biometric sensor" to "detect the biometric part of the input signal" generated from finger movements. Appx58; Appx117. And it found that when sensing multiple finger movements—such as a "touch"/"no touch" pattern—Mathiassen's system "receives *fingerprint* representations," not just a signal corresponding to learned movements. Appx57 (quoting Appx213); Appx116 (quoting Appx3246) (emphasis added). Mathiassen supports that finding. Again, to "measure" finger movements, Mathiassen's system "obtain[s]" a "series of fingerprint representations" that are "generated by the fingerprint sensor signal capturing and pre-processing block." Appx1297 (¶192). Those "fingerprint representations" contain biometric data, such as data based on "fingerprint lines (ridges)." Appx1287 (¶¶49-50); Appx1297 (¶192). And Apple's expert confirmed that Mathiassen receives each of these representations, because it "determines the finger movements from analyzing the

series of fingerprint representations." Appx2349; Appx1297 (¶192) (Mathiassen discussing same).

CPC errs in arguing against this evidence by contending that both parties' experts agreed that Mathiassen's finger movements are "not biometric" because they "can be learned." CPC.Br.22-23 (citing Apple's expert at Appx3097-3098 and CPC's expert at Appx2987-2988 (¶53), Appx2968-3003). There was no agreement. Far from conceding that Mathiassen receives only non-biometric data when a user moves her finger across the sensor, Apple's expert stated that Mathiassen "teaches a fingerprint sensor capturing and processing the information, biometric information" when it is "detecting a series of finger movements." Appx2932-2933. His testimony at Appx3097-3098 was the same: Mathiassen teaches "using a series of fingerprint representations that have been captured by the sensor and looking for the movement of those fingerprints." Appx2097-3098. That Mathiassen is *also* receiving learned information at the same time—*i.e.*, the touch pattern or omnidirectional finger movements entered along with the series of fingerprint representations—does not negate that evidence.

Even CPC's expert did not actually state otherwise. Appx2987-2988 (¶53). Rather, he stated the general proposition that "there is a distinction between knowledge-based and biometric information." Appx2987-2988 (¶53). He then opined that "the finger movements suggested in Mathiassen, as distinct from

fingerprints themselves, are not biometric signals." Appx2987-2988 (¶53) (italics omitted). Yet Mathiassen's finger movements are not distinct from fingerprints. Rather, the two are intertwined: Mathiassen detects finger movements *by* detecting "a series of fingerprint representations that have been captured by the" fingerprint sensor. Appx57-58 (Board finding same); Appx116-117; Appx2348-2349 (Sears explaining same); Appx3097-3098; Appx1287 (¶50); Appx1297 (¶192) (Mathiassen describing same).

In this way, Mathiassen is just like the shared specification's own limited description, which CPC cannot escape. The patents describe "providing a succession of finger presses to the biometric sensor," which must match "a stored set of legal control signals" by having the "appropriate quantity" and "duration" and be "input within a predetermined time." Appx142 (col.10:45-63). The Board recognized in its claim construction, which CPC has not challenged on appeal, that this passage describes an example of receiving a series of entries of the biometric signal. Appx35-37; Appx94-96. The example "include[s] a biometric component"—fingerprints—even though it also includes learned finger movements, *i.e.,* finger presses of the "appropriate" quantity and duration within a "predetermined" time. Appx7; Appx39-40; Appx99. That is because a "fingerprint sensor's ability to recognize a fingerprint is not turned off when a succession of finger presses is applied to the fingerprint sensor." Appx37; Appx96 (Board

23

construing disputed limitation). CPC's own patents thus contradict its repeated attempts to treat biometric signals as entirely distinct from, and mutually exclusive of, such learned movements. Appx35-37; Appx39-40; Appx94-99.

Nor is there merit to CPC's attempt to distinguish its claims from the prior art based on purported "purpose." CPC.Br.23-25. CPC argues that Mathiassen's fingerprint sensor has a "*dual purpose*" of "reading fingerprints" and issuing "commands/instructions," and that the issue is whether Mathiassen's "fingerprint sensor is operating for the first purpose" or the second when "it analyzes finger movements." CPC.Br.23-25 (CPC's emphasis). Even were that the issue, the Board reasonably found that Mathiassen's fingerprint sensor is always operating for the first fingerprint-reading "purpose": "Because Mathiassen, like the '208 patent, uses a biometric sensor as the input device, it will detect the biometric part of the input signal, *while also* sensing the number and duration of inputs." Appx58; Appx117 (emphasis added). The record supports that finding for all the reasons explained. Appx2350 (Sears explaining that Mathiassen's sensor "is still acting as a fingerprint sensor" when receiving sequences of finger movements); Appx1297 (¶192) (Mathiassen senses both fingerprint representations and finger movements to control device); *supra* pp. 15-17.

In any event, CPC is wrong about the issue here. For one, the relevant limitation says nothing about "analyz[ing] finger movements," much less that such

analysis must be for a distinct purpose. It requires only a system with "means for receiving," or "configured to receive," a biometric-signal series. Appx145 (col.15:61-62); Appx166 (col.16:34-35); *see* Appx2314; Appx2271-2326 (CPC expert acknowledging that challenged patents distinguish between receiving and analyzing); Appx160 (col.4:35-40) (relevant distinction in patent). CPC's arguments about whether "Mathiassen's movement analyzing means" are "concerned with finger movement, as opposed to the fingerprints themselves," thus have no bearing on the disputed limitation. CPC.Br.23-24.

Nor, independently, is there any legal basis for reading a "purpose" requirement into these claims. "[A]pparatus claims cover what a device *is*, not what a device *does*." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1468 (Fed. Cir. 1990). To defeat obviousness, such claims must therefore "*be* different" (or "*unobviously* different") from the prior art; whether they serve a different subjective purpose is not the test. *Hewlett*, 909 F.2d at 1464 & n.2. And because the only challenges CPC raised at the Board and here go to claim 1's system, it has doubly forfeited any arguments specific to the method claims of the challenged patents. CPC.Br.21; Appx9; Appx75; *SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1320 (Fed. Cir. 2006) (arguments not raised in opening brief are forfeited); *Microsoft Corp. v. Biscotti, Inc.*, 878 F.3d 1052, 1075 (Fed. Cir. 2017) (arguments not raised to Board are forfeited). Even without forfeiture, CPC's

method claims are not meaningfully different because they too say nothing about analyzing finger movement for a specific purpose. Appx146 (col.17:19-col.18:13) (merely requiring, *e.g.*, "receiving a series of entries of the biometric signal" and "determining at least one of the number of said entries and a duration of each said entry").

CPC is also wrong that the same Board panel in other *inter partes* reviews involving unrelated petitioner ASSA ABLOY reached different conclusions that support a different result here. CPC.Br.24-27 & n.2. To the extent those vacated Board decisions are relevant, they only illustrate the errors in CPC's analysis. The ASSA ABLOY Board decisions turned on a different prior-art reference called Mathiassen-067. Appx4304; Appx4397. Mathiassen-067 is an international patent application filed by Camilla Mathiassen; it is unrelated to the Mathiassen reference in these proceedings, which is a United States patent application filed by Svein Mathiassen. Appx4232, Appx4243; Appx1273. Unlike the Mathiassen reference here, Mathiassen-067 discloses a fingerprint sensor with "separate and distinct" operating modes: one involving "fingerprint authentication" for "[a]ccess [c]ontrol"; and others involving "Text Input" and "Cursor Control" for navigating a device. Appx4304; Appx4397. Relying on undisputed expert testimony, the ASSA ABLOY Board decisions upheld the claims in part because they found that Mathiassen-067's sensor "is no longer functioning as a fingerprint sensor" when

configured for text-input mode, the mode involving multiple finger presses. Appx4295, Appx4300-4304; Appx4386, Appx4393-4398.   But the Mathiassen reference here (not to mention the expert evidence) is different, expressly teaching that finger touches or movements are received as a "series of fingerprint representations" by a fingerprint sensor.   Appx1297 (¶192); Appx2350 (Sears explaining that Mathiassen's sensor is "still acting as a fingerprint sensor" when detecting movements).   This substantial evidence shows that Mathiassen's finger movements and its fingerprint representations are not part of different "modes." That the Board made different findings based on the distinct record here just confirms that the Board carefully considered the record and made evidence-backed findings from it.[2]

In relying heavily on the ASSA ABLOY Board decisions, CPC also wrongly downplays the reason the Director vacated them. CPC concedes vacatur was based on the Board's belated construction of "biometric signal" to require a signal "*that provides secure access* to a controlled item."   Appx4287; Appx4377 (emphasis added). CPC tries to dismiss that as "other grounds" (CPC.Br.24)—but the Board's narrow construction of "biometric signal" in the ASSA ABLOY decisions was

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[2] Although CPC included the ASSA ABLOY Board decisions in the Appendix, they are not part of the proceedings in this case and thus not properly part of the record on appeal. *See* Fed. Cir. R. 30.

central to the non-obviousness conclusion on which CPC is relying. Appx4300-4304; Appx4398-4399 (concluding that petitioner had "not shown" that "Mathiassen-067 detects a fingerprint or other biometric signal"). Indeed, despite agreeing with Apple in these Board proceedings that a "biometric signal" is any "physical attribute of the user" such as a "fingerprint," CPC is now belatedly trying to read into the challenged claims additional requirements from the ASSA ABLOY Board decisions to distinguish its claims from the prior art here. After all, CPC argues that Mathiassen's and Anderson's series are not "biometric signals" because biometric signals must be entered for the specific "purpose" of "authentication and access control." *Compare* CPC.Br.24-27 (quoting Appx4385-4386); *with* Appx4279; Appx4369-4370 (Board in ASSA ABLOY opining that "the purpose of the biometric signal is to achieve this objective—'secure access to a controlled item'"). The Court should reject CPC's reliance on now-vacated Board reasoning, which was based on a materially different record in any event.

> **b.   *CPC overlooks Board findings and supporting evidence that Anderson also discloses a biometric signal series***

CPC's arguments directed to Anderson's teachings similarly fail. CPC has no good answer for Anderson's express statement that its system may include biometric input: "in an exemplary embodiment, digitizer pad may include an optical scanner or thermal sensor collecting an image of the user's fingerprint as the pressure access

code is entered and verified against a stored fingerprint template." Appx1324 (col.7:4-8) (figure reference number omitted). CPC argues that Anderson teaches collecting only "*an* image of the user's fingerprint," not multiple such images. CPC.Br.26 (emphasis CPC's) (quoting Appx1324 (col.7:6-7)). Yet that argument acknowledges Anderson teaches a biometric signal, belying CPC's argument that Anderson is only knowledge-based. Even were Anderson's pattern only knowledge-based—that is, even had Anderson disclosed only a single biometric signal—the Board rightly concluded the claims would still have been obvious. Appx58. It found that "Mathiassen and McKeeth" teach "biometric sensing" and that Anderson at least "suggests the benefits and options of using a number and duration of pulses as inputs." Appx58; *supra* pp. 15-20. CPC gives the Court no basis to disturb that reasoning, which is independent of whether Anderson itself discloses biometric sensing. CPC.Br.25-27. CPC thus has forfeited any such challenge. *SmithKline*, 439 F.3d at 1320.

Regardless, CPC cannot overcome the substantial evidence supporting the Board's finding that Anderson, too, discloses or suggests receiving a series of entries a biometric signal. Appx57; Appx116. CPC again wrongly asserts that the experts agreed "Anderson's finger presses are knowledge-based." CPC.Br.25 (citing Appx2894; Appx2993); CPC.Br.14 (similar). CPC bases that argument about Anderson on the same flawed premise it applies to its arguments about Mathiassen:

that using "knowledge-based" finger presses and using biometric signals are mutually exclusive. CPC.Br.14, 25. There is no such mutual exclusivity, and CPC's own patent recognizes that learned movements often go hand in hand with biometric signals, like applying a "dit, dit, dit, dah" fingerprint pattern to a sensor. Appx142 (col.10:57-63); *supra* pp. 21-24. Apple's expert similarly testified that Anderson at least suggests "capturing a fingerprint image *each time* the finger is in contact with the digitizer tablet," *i.e.*, receiving multiple biometric signal entries. Appx3091 (emphasis added). That description matches the claim text, which recites "a series of entries of the biometric *signal*," singular, not a series of entries of biometric *signals*, plural. Appx145 (col.15:61); Appx166 (col.16:15). And while CPC cites Apple's expert at Appx2894, Dr. Sears simply acknowledged that "the amount of pressure" and whether contact is for a "short" or "long" time may be knowledge based. Appx2894. He never agreed that including such knowledge-based features, which CPC's own claims recite, precludes Anderson from disclosing a biometric signal series. Appx2894.

CPC's expert also contradicted CPC's view. He explained that "if a sensor only captures the knowledge of a user, it is not properly characterized as biometric." Appx2993 (¶69) (emphasis omitted). But he admitted that Anderson captures more than just user knowledge: Anderson describes including "'an optical scanner or

thermal sensor'" so that "fingerprint *images* (biometric *signals*) are captured 'as the pressure code is entered.'" Appx2993 (¶68; emphases added).

Given that testimony, the Board was more than justified in finding "there can be no reasonable dispute that Anderson discloses input biometric signals that vary in number and duration." Appx57; Appx116. Contrary to CPC's suggestion (at 25 n.3), the Board did not implicitly disavow this finding simply because it also relied on Mathiassen's biometric teachings. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1373-74 (Fed. Cir. 2019) (affirming Board alternative findings underlying obviousness based on reference alone or combined with another reference). Nor does Anderson "denigrat[e]" fingerprint technology or reject it as "optional," as CPC alleges. CPC.Br.13-14, 26. Anderson merely observes that such technology "utilizes specialized equipment and may require sophisticated software." Appx1321 (col.1:54-57). Anderson then discloses using that equipment and technology, recognizing its desirability. Appx1324 (col.7:5-8).

CPC also insists that Anderson's specification does not include a phrase the Board used in its decisions, "fingerprint access code." CPC.Br.26 n.4 (quoting Appx44; Appx103). The Board never said it did. Appx44; Appx103. The Board just accurately described Anderson's teaching that "[v]erification of both the collected fingerprint image and the [variable number and duration] access code" is "required" before a user may access a device. Appx1324 (col.7:8-11).

Lastly, CPC errs again in relying on the extra-record ASSA ABLOY Board decisions. CPC.Br.26-27. Anderson was not a prior-art reference in those proceedings. Appx4220-4307, Appx4308-4401. Regardless, for all the reasons explained, the ASSA ABLOY Board decisions reinforce rather than undermine the Board's findings underlying obviousness here. *Supra* pp. 26-28.

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Because substantial evidence supports the Board's findings that the proposed combination would have included the number-and-duration limitation, the Court should affirm.[3]

B.   Substantial Evidence Supports The Board's Finding That The Proposed Combination Would Have Included The Disputed Number-And-Duration Limitation As Part Of Any Required "Enrollment Process"

CPC separately argues that the proposed combination is deficient because it lacks "finger movements" that are "part of a user enrollment process." CPC.Br.27-30. CPC again cannot overcome the Board's well-supported findings on this issue.

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[3] CPC at times states the issue here as whether the Board "abused its discretion." CPC.Br.3-4, 27. But an abuse-of-discretion standard would not help CPC. To prevail on the factual issues CPC presses, CPC would still be required to show the Board made "factual findings that are not supported by substantial evidence." *Star Fruits SNC v. United States*, 309 F.3d 1277, 1281 (Fed. Cir. 2005).

1. *The prior art discloses or suggests the claimed series as part of an enrollment process*

CPC argues "[t]here is no teaching in Mathiassen that the[] finger movements are part of an enrollment process as required by the challenged claims, or that the finger movements are used to populate a database." CPC.Br.28. The Board considered and reasonably rejected CPC's similar arguments below.

First, the Board found that "there can be no reasonable dispute that Mathiassen" discloses a "program for converting finger movements into control signals." Appx59 (citing Appx1297 (¶192)). Rightly so: Mathiassen teaches that detected series of fingerprint representations matching a "predefined set[] of finger movements" are "translated" into a "control signal" for "controlling the device." Appx1297 (¶192). Mathiassen thus discloses using the claimed series of biometric-signal entries to input a "command" for controlling the device. Appx60; Appx120; Appx1196-1197; Appx3978 (Sears explaining same). Anderson similarly teaches that its system's receipt of a series of entries of a biometric signal of a particular number and duration may trigger a command, namely, "allowing" a user "access to the system or information" that is secured. Appx1324 (col.7:10-11); Appx1196-1197; Appx3978 (Sears explaining same).

Second, the Board found that Mathiassen combined with the other art discloses or suggests that the control signal (*i.e.*, command) from a detected series of fingerprint representations can be part of a user-enrollment process specifically.

Appx60-61; Appx120-121. The Board found that Mathiassen "teaches or renders obvious administrative code directing" its authentication system "to store fingerprint representations," *i.e.*, "biometric signatures," "in master minutiae tables (i.e., database of biometric signatures)" as part of "enrolling a new user." Appx60 (citation omitted); Appx120-121. The Board agreed with Apple that it would have been obvious "to include an enrollment command in the command table" so that a received series of fingerprint representations are mapped to the administrative code for enrolling a new user. Appx120-121; Appx60. The Board thus recognized that the prior art's teachings would have led ordinarily skilled artisans to translate sequences of finger movements received by a biometric sensor into various commands, including commands for use in enrolling a new user. Appx59-61; Appx119-121.

The record supports these findings too. Mathiassen teaches that an administrator initiates enrollment of "the next user" by "authenticating himself by his fingerprint," *i.e.*, using biometric input. Appx1290; Appx1294 (¶¶71, 131); *see* Appx1292 (¶120) (similarly describing initiating enrollment process that begins by "touch[ing] the sensor"). As Dr. Sears explained, Mathiassen thus teaches a processor "configured to 'populate [a] database according to a specific user's input (i.e., administrator's fingerprint)" and the same processor "translating different finger movement sequences to various commands for instructing the system."

Appx1191-1195; Appx3972-3976. Based on these teachings, he opined that the relevant artisans "would have found it obvious and been motivated to modify Mathiassen's enrollment procedure to be initiated with a series of fingerprint presses of particular durations, as taught by Anderson." Appx1191-1195; Appx3972-3976; Appx1196-1199; Appx3978-3982.   Mathiassen also teaches, and Dr. Sears explained, that once the administrator has initiated enrollment, enrollment of a new user involves receiving and storing the new user's fingerprint representations in master minutiae tables in non-volatile memory. Appx1289 (¶120); Appx1293-1294 (¶¶129-31); Appx1296 (¶¶162-64); Appx1193-1195; Appx3974-3975.

As this evidence shows, the prior art's teachings mirror the limited description in the challenged patents, which similarly describe an administrator "providing a succession of finger presses to the biometric sensor." Appx142 (col.10:46-47). If those presses are of the proper "number" and "duration," they are accepted as "potential control information" and checked "against a stored set of legal control signals." Appx142 (col.10:53-56). "One example of a legal control signal" is "Enrol [*sic*] an ordinary user." Appx142 (col.10:57-63). The patents thus contemplate initiating enrollment by entering a sequence of finger presses of "appropriate" number and duration. The Board reasonably found that Mathiassen and the other art "disclose or suggest" the same approach. Appx61; Appx122.

2. *CPC cannot avoid obviousness by demanding more express disclosures and misinterpreting the evidence*

CPC's main argument is that the prior art does not receive a biometric signal series as part of an enrollment process because the received prior-art signal series is "compared to *predefined* sets of finger movement sequences" or to "a *stored fingerprint template*," which, according to CPC, can occur only "after" enrollment. CPC.Br.27-30 (CPC's emphasis; quoting Appx1297; Appx1324). The challenged patents themselves contradict that view. The claims require "means for receiving a series of entries of the biometric signal," "means for mapping said series into an instruction," and "means for populating the data base according to the instruction." Appx145 (col.15:61-67); *see* Appx166 (col.16:15-20) (similar, with "configured to"). They thus require that the biometric signal series is mapped to a database-populating-related instruction—not that the series itself, including its number and duration elements, is somehow populated into the database during enrollment. Appx145 (col.15:61-67).

The patents' sparse description of a biometric signal series reflects the same point: to "[e]nrol an ordinary user," "a succession of finger presses" is treated as "potential control information" and checked against an *already* "stored set of legal control signals"; the "[l]egitimate control sequences are defined in *Read Only Memory*." Appx142-143 (col.10:53-56; col.11:1-2) (emphasis added). Thus, just like the prior art, the patents describe comparing a received biometric signal series

36

against previously stored data, not storing that data itself during new-user enrollment. Appx142-143 (col.10:53-56; col.11:1-2).

Unable to identify any difference between the claims and the prior art, CPC complains that the Board "simply ignores *when and whether* Mathiassen's sensor collects" biometric signals. CPC.Br.28 (CPC's emphasis). But it is CPC who ignores the Board's findings that Mathiassen teaches "translating the series of finger movements to a command in a command table" and that one of those commands can be "'administrative code directing'" a processor "'to store fingerprint representations in master minutiae tables'" for "'enrolling a new user.'" Appx59-61 (citation omitted); Appx119-121. The Board thus addressed the "when and whether" that CPC complains are missing. Appx59-61; Appx119-121.

Given that articulated reasoning, CPC's complaint that the Board "fail[ed] to address CPC's argument" is wrong. CPC.Br.28-29. The Board not only addressed the issue, but expressly explained how the prior art's disclosures render obvious mapping a series of fingerprint representations to "an enrollment command." Appx119-121 (also reproducing table from Apple's petition comparing claims to prior art); Appx59-61.

Even if the Board had not provided this express reasoning, the Court may affirm so long as it can "reasonably discern that [the Board] followed a proper path." *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1365 (Fed. Cir. 2015)

(citation omitted). That path is readily discernible here. The Board responded to CPC's argument that Mathiassen does not expressly teach a "series" as part of an enrollment process by pointing to Mathiassen's teachings of (1) a "series of entries of the biometric signal" that are (2) translated "into a command" where (3) one such command is for use in an enrollment process that may itself involve entering additional biometric input. Appx56-61; Appx115-122 (citing Appx1297 (¶192)). The Board expressly incorporated Apple's arguments and evidence, including its expert testimony, tying the prior art's series of entries of a biometric signal to an enrollment command specifically. Appx122; *see* Appx120-121 (Board citing Sears' declarations); Appx58-61 (similar). No more was required. *Outdry Techs. Corp. v. Geox S.p.A.*, 859 F.3d 1364, 1370 (Fed. Cir. 2017) (Board "sufficiently explained" findings when it "articulated" a party's "arguments with evidentiary support and expressly adopted them").

CPC's argument also contradicts basic obviousness principles. CPC complains that "nothing expressly taught in Anderson" or Mathiassen "relates to an enrollment process." CPC.Br.30; CPC.Br.12 (similar). For all the reasons just explained, the Board correctly rejected that argument on the facts here and given the prior art's express teachings. But even so, CPC also overlooks that "the Board must consider a prior art reference 'not only for what it expressly teaches, but also for what it fairly suggests.'" *Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1049 (Fed.

38

Cir. 2019). The analysis requires looking to "the knowledge" that "an ordinarily skilled artisan would have brought to bear when considering combinations or modifications." *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013). These principles further support the Board's decisions. The Board recognized that both Mathiassen and Anderson teach using a series of biometric entries—whether Mathiassen's finger movements or Anderson's variable pressure pulses—to instruct a command. Appx58-61; Appx120-122. And it found that Mathiassen teaches using biometric input to initiate enrollment. Appx58-61; Appx120-122. Combining those teachings was ordinary-artisan work, as CPC concedes by never challenging the Board's findings that a skilled artisan would and could have made that combination. Appx58-61; Appx120-122.

CPC's remaining arguments misinterpret the record in similar ways. It contends that Mathiassen's master minutiae "tables are *not* the feature from Mathiassen that Apple proposes modifying with Anderson's pressure pulses." CPC.Br.29 (CPC's emphasis). But as Apple's petitions explained, those tables correspond to the claimed database that must be populated with biometric signatures, such as in an enrollment process. Appx214 ("[E]nrolling new users includes creating master minutiae tables subsequently stored in memory."); *see* Appx3248, Appx3204-3284. Indeed, CPC has conceded those tables constitute a "database of biometric signatures." Appx47; Appx107. Thus in discussing the tables in

conjunction with Mathiassen translating finger movements into commands, the Board was tying Mathiassen's finger movements to its enrollment process—the very thing CPC wrongly argues is missing. Appx59-60.

In the end, CPC's entire "enrollment process" argument is divorced from any actual claim requirement. CPC repeatedly treats the claims as if they required performing method steps at specific times and in specific ways, such as when it complains the Board focused on the "*how*" instead of the "*when*" of Mathiassen's sensor's operation. CPC.Br.27-30 (CPC's emphasis). It bases that argument on an allegedly claimed "enrollment process." CPC.Br.4-6. But again, "illustrative" claim 1 of each patent is a system claim, not a method claim. CPC.Br.4-6; Appx145 (col.15:42-col.16:3); Appx166 (col.15:62-col.16:23). Neither claim mentions an enrollment process nor uses any similar phrase. Appx145 (col.15:42-col.16:3); Appx166 (col.15:62-col.16:23). Instead, the claims mention "enrolling" only in two method claims that recite steps like "enrolling a biometric signature into the database of biometric signatures" by "receiving *a* biometric signal" and "enrolling *the* biometric signal." Appx146 (col.18:14-20) (emphasis added); Appx167 (col.18:1-10) (similar). CPC made no arguments to the Board specific to these method claims or their "enrolling" language. Appx266-292; Appx381-419; Appx3290-3316; Appx3390-3431. CPC thus has waived, or at least forfeited, any such argument. *SmithKline*, 439 F.3d at 1320. And even so, neither method claim recites a *series* of

entries of a biometric signal as part of that enrolling step. Appx146 (col.18:14-20); Appx167 (col.18:1-10). CPC's attacks on the Board's decisions fall short for these reasons as well.

<p style="text-align:center">*   *   *   *   *</p>

Because the Board's findings regarding the prior art and the disputed claim limitation are supported by substantial evidence, its decisions should be affirmed. Even so, CPC is wrong that its appeals would entitle it to reversal even if successful. *Contra* CPC.Br.30-31. CPC alleges the Board failed adequately to explain its findings; "filled in the gaps" for Apple; and overlooked expert evidence. CPC.Br.3, 28-29. Those are issues that at most warrant a remand "for additional PTAB findings and explanations." *In re NuVasive, Inc.*, 842 F.3d 1376, 1384-85 (Fed. Cir. 2016).

CONCLUSION

The Board's decisions should be affirmed.

Dated: July 3, 2024   Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

The foregoing filing complies with the relevant type-volume limitation of the Federal Rules of Appellate Procedure and Federal Circuit Rules because the filing has been prepared using a proportionally spaced typeface and includes 8,825 words, excluding the parts of the brief exempted by the Rules.

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